snapserver®

Configuration Guide

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SnapServer® Configuration Guide

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1 Introduction

This document is intended as a guide for configuring and ordering SnapServer NAS Systems, Optional Expansion, Software and Service. It is primarily intended as a "what should be ordered with what" guide and provides an overview of the features and functionality of each of the options available. This has been designed as an "all inclusive" guide as much as possible but should not be used as a complete substitute for Datasheets and/or administration guides.

This first part of this guide (Sections 2 through 5) is divided in to the following sections:

- SnapServer NAS Systems – providing an overview of available SnapServer NAS Systems
- SnapServer NAS Capacity Expansion – providing an overview for the SnapServer Expansion storage available for scalable SnapServer NAS Systems.
- SnapServer NAS Software Solutions – providing an overview of GuardianOS™ and available software options that work with GuardianOS based SnapServer NAS Systems.
- Overland Storage Services for SnapServer NAS Systems and Software – providing an overview of the service offerings available for existing as well as discontinued SnapServer NAS systems.

The second part of this guide (Section 6) then provides full details on configuring a solution with the logical steps to follow (including part numbers).

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2 SnapServer NAS Systems

SnapServer NAS Systems are a complete family of platforms, software solutions and services designed to store and protect data allowing the deployment of "right-sized" storage to various locations within a small to medium business or enterprise.

Designed as NAS and iSCSI appliances to take advantage of industry standards for centralized storage and access to data, SnapServer NAS Systems are also robust servers providing enough processing power for data protection, replication and system management applications.

There are three general categories of SnapServer systems – Midrange, Workgroup, and Desktop. Midrange SnapServer systems are designed with enterprise-class features to support the more complex environments typically found in small and medium businesses. Workgroup SnapServer systems are designed primarily around affordability for smaller departments and remote offices. And the SnapServer Desktop systems, while they may appear similar to other "NAS-only" devices available in the market, are designed with sufficient processing power and reliability to provide full data protection as well as data-sharing for small office and home office users.

2.1 Midrange SnapServer NAS Systems

Midrange SnapServer NAS Systems are designed to manage higher workload levels and capacities and are, by design, scalable with the addition of SnapServer Expansion storage.

	SnapServer N2000
Processor(s)	1 Quad-Core Xeon Processor
Memory	2GB (1 x 2GB Module)
Power Supplies	Dual Standard
Drive Type in Head	SAS or SATA II
Model Capacities	1.2TB, 2.4TB SAS; 4TB, 8TB SATA II
SAS Expansion HBA	Standard
Expansion	Up to 5 E2000 Expansions

2.1.1 SnapServer N2000

The SnapServer N2000 is a 2U, 12-Bay rack mount Network Attached Storage server that includes 4 drives and is scalable to 12 drives internally. Up to 120TB additional capacity can be added via the included SAS connection to support up to 5 SnapServer Expansion E2000 JBOD units. Each configuration includes 4 Hot-Swappable SAS or SATA II drives with 8 drive slots available for internal expansion; 1 x Quad-Core Intel Xeon processor; 2GB of Memory (1 x 2GB Memory Module); Dual Gigabit Ethernet ports (expandable up to 6 ports with the addition of dual-port or quad-port Gigabit Ethernet PCIe Cards); Dual power supplies; and a Slide Rail Rack Mount Kit. It supports RAID 0, 1, 5, 6 and 10 (Configured with RAID 5 as standard). Tape attachment for backup is supported with an optional U320 SCSI adapter card, daisy chained via SAS connectivity or via USB port. Software Included: GuardianOS, iSCSI, Snapshot, CA AntiVirus. The following table provides a summary of the differences between the SnapServer N2000 configurations.

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	SnapServer N2000, 2.4TB SAS	SnapServer N2000, 1.2TB SAS	SnapServer N2000, 8TB SATA ENT	SnapServer N2000, 4TB SATA ENT	SnapServer N2000, 8TB SATA DT	SnapServer N2000, 4TB SATA DT
Part Number	OV-NAS101003	OV-NAS101004	OV-NAS101002	OV-NAS101001	OV-NAS101006	OV-NAS101005
Form Factor	2U	2U	2U	2U	2U	2U
Drive(s) Installed	4 x 600GB SAS (Enterprise)	4 x 300GB SAS (Enterprise)	4 x 2TB SATA II (Enterprise)	4 x 1TB SATA II (Enterprise)	4 x 2TB SATA II (Desktop)	4 x 1TB SATA II (Desktop)
Raw Capacity / Max.[1]	2.4TB / 127.2TB	1.2TB / 123.6TB	8TB / 144TB	4TB / 132TB	8TB / 144TB	4TB / 132TB
Usable Capacity[2]	1,670GB	830GB	5,580GB	2,790GB	5,580GB	2,790GB
Memory	2GB	2GB	2GB	2GB	2GB	2GB
Network (Standard; Optional Add-On)	2 x 1GbE; 6 x 1GbE Max	2 x 1GbE; 6 x 1GbE Max	2 x 1GbE; 6 x 1GbE Max	2 x 1GbE; 6 x 1GbE Max	2 x 1GbE; 6 x 1GbE Max	2 x 1GbE; 6 x 1GbE Max
Power Supply	Dual Standard	Dual Standard	Dual Standard	Dual Standard	Dual Standard	Dual Standard
External SCSI Port	Optional	Optional	Optional	Optional	Optional	Optional
Expansion Port	SAS (Included)	SAS (Included)	SAS (Included)	SAS (Included)	SAS (Included)	SAS (Included)
Expansion Option	Up to 5 x E2000 + 2 x SAS Tape Drives	Up to 5 x E2000 + 2 x SAS Tape Drives	Up to 5 x E2000 + 2 x SAS Tape Drives	Up to 5 x E2000 + 2 x SAS Tape Drives	Up to 5 x E2000 + 2 x SAS Tape Drives	Up to 5 x E2000 + 2 x SAS Tape Drives

Note: SnapServer N2000 units are sold with 4 drives and contain 8 drive slot blanks. Drives may be ordered in 4-packs or as singles. ***Drives used in the SnapServer N2000 must be obtained from Overland Storage and have SnapServer N2000 drive carriers.***

2.2 Workgroup and Desktop SnapServer NAS Systems

Workgroup and Desktop SnapServer NAS systems are designed for affordability while providing sufficient processing power and design attributes to reliably run data protection applications. While the SnapServer 410 systems can be used effectively to run the Snap Enterprise Data Replicator (Snap EDR) management console, the SnapServer 210 systems are not designed to manage a large number of Snap EDR replication jobs[3]. If you are considering the deployment of a large number of workgroup, fixed capacity systems, you should also consider a Midrange SnapServer NAS System for the centralized management and data repository for the distributed workgroup SnapServer NAS Systems.

2.2.1 SnapServer 410

The SnapServer 410 is a 1U, 4-Drive fixed capacity rack mount Network Attached Storage server. Each configuration includes 4 Hot-Swappable SATA II Drives; 1 x Single-Core 2GHz processor; 1GB of Memory (2 x 512MB Memory Modules, can be upgraded to 2GB with 2 x 1GB Memory Modules); Dual Gigabit Ethernet ports; Single power supply; and Fixed Rack Mount Brackets. Supports RAID 0, 1, 5, 6 or 10 (Configured with RAID 5 as standard). An optional Ultra 160 68-pin LVD VHDCI SCSI Adapter is available for local tape backup. Software Included: GuardianOS. Software Options: iSCSI, Snapshot, CA AntiVirus. The following table provides a summary of the differences between the SnapServer 410 configurations.

1 Maximum raw capacities on N2000 configurations assume that the 12 internal drives are identical and the expansion units are fully populated with the largest drive available.

2 All N2000 systems are preconfigured with 4-Drives in a single RAID 5 set. Capacity estimations are calculated, but are only approximations for planning purposes. Actual capacities will vary.

3 It is recommended that SnapServer NAS Systems being used as the Snap EDR Management console be minimally configured with 1GB of memory with the potential for memory expansion to allow growth. The SnapServer 210 Systems are configured with a maximum of 1GB memory and should not be used as Snap EDR Management consoles.

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	SnapServer 410, 8TB SATA	SnapServer 410, 4TB SATA	SnapServer 410, 2TB SATA
Part Number	5325302320	5325302223	5325302029
Form Factor	1U	1U	1U
Drive(s) Installed	4 x 2TB SATA II (Desktop)	4 x 1TB SATA II (Desktop)	4 x 500GB SATA II (Desktop)
Raw Capacity / Max.	8TB	4TB	2TB
Usable Capacity[4]	5,580GB	2,790GB	1,390GB
Memory	1GB; 2GB Max.	1GB; 2GB Max.	1GB; 2GB Max.
Network (Standard)	Dual 1GbE	Dual 1GbE	Dual 1GbE
Power Supply	Single	Single	Single
External SCSI Port	Optional	Optional	Optional
Expansion Port	None	None	None
Expansion Option	N/A	N/A	N/A

2.2.2 SnapServer 210

The SnapServer 210 is a 2-Drive fixed capacity desktop Network Attached Storage server. Each configuration includes 2 SATA-II Drives; 1 x Single-Core 1.3GHz processor; 1GB of Memory (1 x 1GB Memory Module); Single Gigabit Ethernet port; and a single power supply. Supports RAID 0 or 1 (Configured with RAID 0 as standard). Software Included: GuardianOS. Software Options: iSCSI, Snapshot, CA AntiVirus. The following table provides a summary of the differences between the SnapServer 210 configurations.

	SnapServer 210, 4TB SATA	SnapServer 210, 2TB SATA	SnapServer 210, 1TB SATA
Part Number	5325302318	5325302314	5325301981
Form Factor	Desktop	Desktop	Desktop
Drive(s) Installed	2 x 2TB SATA II (Desktop)	2 x 1TB SATA II (Desktop)	2 x 500GB SATA II (Desktop)
Raw Capacity / Max.	4TB	2TB	1TB
Usable Capacity[5]	3,720GB	1,860GB	920GB
Memory	1GB	1GB	1GB
Network (Standard)	Single 1GbE	Single 1GbE	Single 1GbE
Power Supply	Single	Single	Single
External SCSI Port	None	None	None
Expansion Port	None	None	None
Expansion Option	N/A	N/A	N/A

[4] All 410 systems are preconfigured with 4-Drives in a single RAID 5 set. Capacity estimations are calculated, but are only approximations for planning purposes. Actual capacities will vary.

[5] All 210 systems are preconfigured with 2-Drives in a single RAID 0 set. Capacity estimations are calculated, but are only approximations for planning purposes. Actual capacities will vary.

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2.3 General Notes on SnapServer NAS Models and Configurations

2.3.1 SnapServer N2000 Memory Configuration

All configurations of the N2000 product include 2GB of memory (1 x 2GB memory module) standard.

2.3.2 SnapServer 410 Memory Upgrades

There are 2 available slots for adding additional memory modules. SnapServer 410 systems are delivered pre-configured with 1GB (2 x 512MB Memory Modules). The pair of memory slots must contain the same size memory module. Upgrading to 2GB requires replacing the included memory modules with 2 x 1GB memory modules.

2.3.3 Configured Capacity

GuardianOS 12-Drive and 4-Drive SnapServer NAS systems are shipped configured with 4-Drive RAID 5 sets while the 1-Drive and 2-Drive SnapServer NAS systems are shipped configured with no RAID and RAID 0, respectively. The "Usable Capacity" estimate rows in all the tables above reflect these defaults. The default configuration may be modified according to the instructions in the Administration Guides.

3 SnapServer NAS Capacity Expansion

The guidelines below provide configuration and ordering information for SnapServer NAS capacity expansion on scalable SnapServer NAS systems.

3.1 SnapServer Expansion E2000

SnapServer N2000 models support expansion with SnapServer Expansion E2000 units. The SnapServer Expansion E2000 can be configured with four (4) to twelve (12) SATA II or SAS drives when being used with SnapServer N2000 systems; however, drives must be the same rotational speeds in columns of three drives. This means that SAS and SATA drives cannot be mixed within the same column of 3 drives, but they can occupy adjacent columns. It is also recommended that drives of the same rotational speed be kept in contiguous columns (e.g. It would not be recommended to have a column of SAS followed by a column of SATA followed by a column of SAS again). Multiple SnapServer Expansion E2000 JBOD units can be added with different capacities.

3.1.1 SnapServer Expansion E2000 Overview

The SnapServer Expansion E2000 can be utilized to provide additional expansion capacity to SnapServer NAS N2000, SnapSAN S2000, and REO 4600 systems.

The SnapServer Expansion E2000 can be configured with up to 12 SATA II or SAS Drives. SnapServer Expansion E2000 JBOD units include SAS I/O Controllers for both input from the SnapServer N2000 system as well as daisy chaining to additional SnapServer Expansion E2000 JBOD units, E2000 units also include a rail-kit for each rack installation and a 1-meter external SAS cable for connecting to an N2000 system or daisy chaining to another E2000 expansion unit.

Note: SnapServer Expansion E2000 units are sold without drives and contain 8 drive slot blanks. Drives may be ordered in 4-packs or as singles. Initially, a minimum of four drives must be ordered (to fill the four empty slots). ***Drives used in the SnapServer Expansion E2000 must be obtained from Overland Storage and have SnapServer Expansion E2000 drive carriers.***

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3.2 SnapServer Expansion S50

SnapServer NAS Models Supported: 650, 620, 550, 520, 18000, and 4500

3.2.1 SnapServer Expansion S50 Overview

The SnapServer Expansion S50 can be utilized to provide additional expansion capacity to the scalable SnapServer NAS systems listed above. It supports the use of both SATA and Serial Attach SCSI (SAS) disk drives in various capacities and rotational speeds.

The SnapServer Expansion S50 can be configured with up to 12 SATA or SAS drives; however, drives must be the same rotational speeds in columns of three drives. This means that SAS and SATA drives cannot be mixed within the same column of 3 drives, but they can occupy adjacent columns. It is also recommended that drives of the same rotational speed be kept in contiguous columns (e.g. It would not be recommended to have a column of SAS followed by a column of SATA followed by a column of SAS again). Multiple SnapServer Expansion S50 JBOD units can be added with different capacities.

The SnapServer Expansion S50 JBOD units include a single SAS I/O Controller, a rail-kit for each rack installation and a 1-meter external SAS cable for host connection or daisy chaining.

Note: SnapServer Expansion S50 units are sold without drives and contain 8 drive slot blanks. Drives must be ordered in 4-packs. ***Drives used in the SnapServer Expansion S50 must be obtained from Overland Storage and have SnapServer/SnapServer Expansion S50 Drive Carriers.***

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3.3 General SnapServer Expansion Configuration Notes

3.3.1 Interconnect

3.3.1.1 N2000 Interconnect

Every SnapServer N2000 includes a single external SAS connection for expandability with SnapServer Expansion E2000 JBOD units. Only 1 SAS HBA (included) is required for expansion. Subsequent SnapServer Expansion E2000 JBODs are connected to previously installed SnapServer Expansion E2000 JBOD units in a daisy chain.

The SAS HBA included with the N2000 also supports the attachment of Tape drives for local backup. Up to 2 SAS Tape drives can be connected to either the SAS connection on the N2000 or the last daisy chained E2000.

Note: The N2000 does not support expansion with SnapServer Expansion S50 JBOD units.

3.3.1.2 600 Series Interconnect

The SnapServer SAS HBA (2219500) is available as a separate FRU. Only 1 SAS HBA is required for expansion. Subsequent SnapServer Expansion S50 JBODs are connected to previously installed SnapServer Expansion S50 JBOD units in a daisy chain.

Note: The SnapServer 600 series does not support expansion with SnapServer Expansion E2000 JBOD units.

3.3.2 Expansion Drive Notes

Both SnapServer Expansion E2000 and S50 JBODs can be configured for SnapServer NAS expansion with either SATA or SAS drives.

Drive 4-Packs and Singles are specific to the platform. Drive carriers are common to both the SnapServer 600 series and the SnapServer Expansion S50. Drive carriers are common to both the SnapServer N2000 and the SnapServer Expansion E2000. Drive carriers for the 600 / S50 and the N2000 / E2000 are not interchangeable between the two families.

3.3.3 Cables

A 1-meter SAS cable is included with each SnapServer Expansion unit for connection to either the SAS HBA (for initial SnapServer NAS Expansion) or to another SnapServer Expansion for daisy chaining.

3.3.4 Legacy SnapServer NAS Systems

For the SnapServer 650/620, SnapServer 550/520, SnapServer 18000 and SnapServer 4500, the SnapServer Expansion S50 can be purchased for capacity expansion for installed systems. For these installed systems, there are a few items to note:

- SnapServer 650/620 and SnapServer 550/520 systems can support a total of 7 Snap Expansion units. The SnapServer 18000 can support up to a total of 7 Expansion Units. This can be a combination of current SnapServer Expansion S50 and legacy Snap Disk 30, but the total number of units remains 7. The 2 expansion array types each use their own unique interconnect card (SAS HBA for the SnapServer Expansion S50 and FC HBA for the Snap Disk 30)
- SnapServer 4500 can support up to a total of 3 expansion units. This can be a combination of the current SnapServer Expansion S50 and legacy Snap Disk 10. However, the ability to add new Snapserver Expansion S50 to a SnapServer 4500 with existing expansion units depends on whether there is an available PCI slot on the 4500 for the SnapServer SAS HBA. Each expansion unit (S50 and SD10) requires its own unique interconnect card.

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4 SnapServer NAS Software Solutions

SnapServer NAS Systems support a wide range of data sharing, data protection and replication solution software designed to be compatible with today's computing environment in distributed enterprises and small businesses.

4.1 GuardianOS

Every SnapServer NAS System is delivered with GuardianOS that combines file-level (NAS) with block-level (iSCSI)[6] data on a single device to provide a simple and flexible solution ideal for any storage infrastructure. In addition to its unified storage architecture, GuardianOS offers seamless scalability for scalable SnapServer NAS systems, centralized storage management, and a comprehensive suite of data protection tools ideal for consolidating data and simplifying management to reduce storage total cost of ownership (TCO).

4.2 GuardianOS Options

4.2.1 GuardianOS Options for Workgroup and Desktop SnapServer NAS Systems

To minimize customer cost for Workgroup and Desktop SnapServer NAS Systems, some features that are included with Midrange SnapServer NAS systems are optional on Workgroup and Desktop SnapServer NAS Systems. This allows Overland Storage to provide a lower cost for those customers that do not necessarily need these optional functions.

The following licenses are optional for Workgroup and Desktop SnapServer NAS systems:

- **CA AntiVirus – Workgroup**
  This license enables antivirus scanning on SnapServer 210 and 410 systems ensuring enhanced data integrity by augmenting any client side antivirus scanning that may also be deployed in a customer configuration.

4.2.2 Snap Enterprise Data Replicator (Snap EDR)

Snap Enterprise Data Replicator (Snap EDR) 7.2 provides a powerful, high-performance data replication and protection solution, with a comprehensive set of data management, movement, and backup capabilities. Administrators can remotely move files between servers; replicate data from their remote offices to a central server where it can be protected with established backup and restore procedures; or automatically distribute data from a central server to multiple remote offices. With Snap EDR, the administrator can implement enterprise-wide data movement, backup, disaster recovery, and compliance operations from a single location.

Snap EDR 7.2 is an option to GuardianOS 5.0 or greater and is licensed by functionality of Snap EDR (EDR Express or EDR Standard) as well as by class of platform (Workgroup, Departmental and Non-SnapServer NAS Systems). Each system participating in Snap EDR replication or backup requires a separate Snap EDR license whether it is a SnapServer NAS, Windows, Solaris, Linux or MAC OS X system.

Snap EDR 7.2 can be used to replicate data between any GuardianOS-powered SnapServer regardless of GuardianOS release provided that Snap EDR is the same version for all SnapServers participating in the replication.

[6] For Workgroup SnapServer NAS Systems (SnapServer 210 and 410 systems) iSCSI Target software is an optionally licensed feature. Refer to GuardianOS Options for Workgroup SnapServer NAS Systems.

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4.2.2.1 Snap EDR Standard and Snap EDR Express

4.2.2.1.1 Snap EDR Standard

Snap EDR Standard Edition includes all functionality, including remote backup, as well as one-to-one, one-to-many and many-to-one replication. Snap EDR Standard can be positioned not only for disk-based backup and disaster recovery but also for data distribution and versioned disk-based backup with the advanced backup functionality included over EDR Express.

Snap EDR Standard is licensed by class of SnapServer NAS Systems as well as by client operating system (for non-SnapServer NAS systems) as follows:

- Snap EDR Standard - Windows / Mac OS X / Linux / UNIX[7]
- Snap EDR Standard - Workgroup
- Snap EDR Standard - Department

4.2.2.1.2 Snap EDR Express

Snap EDR Express is a value-based replication-only suite for two-node, one-to-one replication between SnapServer NAS Systems only. It is primarily positioned for disk-based backup and disaster recovery[8] between two SnapServer NAS systems.

Snap EDR Express is licensed by class of SnapServer NAS Systems as follows:

- Snap EDR Express - Workgroup
- Snap EDR Express - Department

4.2.2.2 Snap EDR for Workgroup or Department

Snap EDR is licensed for SnapServer NAS Systems categorized as Workgroup or Department SnapServer NAS Systems.

4.2.2.2.1 Workgroup SnapServer NAS Systems

SnapServer NAS Systems that are categorized as Workgroup are the following:

- Current SnapServer NAS Systems
  - SnapServer 410
  - SnapServer 210

4.2.2.2.2 Midrange and Department SnapServer NAS Systems

SnapServer NAS Systems that are categorized as Midrange or Department are both covered by the “Department” Snap EDR license and are the following models:

- Current SnapServer NAS systems
  - SnapServer N2000

[7] Snap EDR 7.2 supports Solaris as the only UNIX platform. Refer to the data sheet for specific versions.

[8] GuardianOS also provides disaster recovery options to backup SnapServer settings that should be used in conjunction with Snap EDR for a full disaster recovery solution.

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- Discontinued SnapServer NAS Systems
  - SnapServer NAS 18000
  - SnapServer NAS 15000
  - SnapServer NAS 14000
  - SnapServer NAS 4500
  - SnapServer NAS 4400
  - SnapServer NAS 4200
  - SnapServer NAS 650
  - SnapServer NAS 620
  - SnapServer NAS 550
  - SnapServer NAS 520
  - SnapServer NAS 510

4.2.2.3 Snap EDR Upgrades

Snap EDR upgrades are available for customers that initially licensed Snap EDR Express.

4.2.2.3.1 Snap EDR Express to Snap EDR Standard upgrades

The following upgrades are available from Snap EDR Express to Snap EDR Standard:

- Snap EDR Exp/Snap EDR Std Upg-Workgroup
- Snap EDR Exp/Snap EDR Std Upg-Department

5 Overland Storage Services for SnapServer NAS Systems and Software

While all Overland products are covered by an initial standard warranty, many users require either longer coverage periods or support options that provide for higher system availability. For these users we offer support upgrades and extensions to the standard warranty at the time of system sale as well as support renewals up to a five year period. If your Overland Storage SnapServer NAS solution includes multiple products each item must be covered to the same entitlement. As a special incentive to keep your Overland Storage SnapServer NAS product covered for a longer period of time we offer a discount on multiple years of support coverage when purchased at the time of sale.

5.1 Standard Warranty[9]

SnapServer NAS products are covered by a two- or three-year limited warranty providing a true appliance warranty model that covers all aspects of the product for the warranty period and includes:

- Return to Factory parts warranty.
- 5x9 Technical Telephone Support during Overland Business hours excluding recognized public and company holidays.
- Software maintenance for GuardianOS upgrades and patches as available.

For full details of current service programs, please refer http://support.overlandstorage.com/support/service-coverage.html

[9] Standard Warranty in this document refers to SnapServer NAS products shipped after September 8, 2009. For complete details of products shipped after and prior to September 8, 2009, please refer to www.overlandstorage.com/support/coverage.pdf

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5.2 Levels of Support Coverage

There are three levels of service available in yearly increments[10] for SnapServer NAS Systems as well as supplemental software coverage for GuardianOS optional software as follows:

5.2.1 Overland CARE

SnapServer NAS Systems are eligible for enhanced Overland CARE maintenance options to augment and/or extend the standard limited warranty. Specially priced 3-year and single year Overland CARE support upgrades are available at the time of purchase for up to 5-Years coverage and single year Overland CARE support upgrades can be renewed to protect your investment for the life of the product.

For SnapServer NAS Systems under Warranty, Overland CARE maintenance provides:

- Next business day advance replacement delivery of desktop products and/or Customer Replaceable Spares (CRS).

For SnapServer NAS Systems beyond the Warranty coverage, Overland CARE maintenance also provides:

- 5x9 Technical Telephone Support during Overland Business hours excluding recognized public and company holidays.
- Software maintenance including operating system upgrades as they are made available.

Software Maintenance includes the following:

- 24x7 access to web-based self-support including on line patches, bug fixes, and maintenance releases.
- Standard business day technical support access, response time dependent on engineer availability, excluding recognized public and company holidays.

5.2.2 Overland ACCESS

When 24 hour support coverage is required, Overland Access can be added to any Overland CARE maintenance option to obtain 7x24 access to telephone technical support including weekends and holidays.

5.2.3 Software Maintenance

An active maintenance agreement on the software component of your Overland Storage SnapServer NAS solution is an important piece of your total protected storage solution. Access to updates, patches, and maintenance releases of GuardianOS are available beyond the standard warranty period by purchasing extended software maintenance.

Software Maintenance includes the following[11]:

- Lowest cost support offering 24x7 access to web-based self-support including on line patches, bug fixes, and new version releases.
- 5x9 Technical Telephone Support during Overland Business hours excluding recognized public and company holidays.

[10] At the time of system purchase, Overland CARE is also available in a 3-year increment.

[11] Supplemental Software Maintenance for add-on software is not included under primary product coverage agreements and must be purchased separately. Coverage for these products must be concurrent with the primary SnapServer NAS product coverage.

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5.2.4 Supplemental Software Support

Supplemental Software Support can be purchased for each optional software product. This service is offered as an annual contract for Snap Enterprise Data Replicator (Snap EDR). To purchase Supplemental Software Service, the SnapServer NAS System on which the software product will be run must be covered by Warranty, Software Maintenance or Overland Care maintenance.

Supplemental Software Support includes the following:

- Support offering 24x7 access to web based self-support.
- Technical support access for the Software product in line with the service level of the SnapServer NAS System on which it runs.

5.2.5 Summary of Support Offerings for SnapServer NAS Systems and Software

5.2.5.1 SnapServer N2000 Support Offering Summary

The following table provides a summary of the support offering descriptions for SnapServer N2000 systems.

<table>
<tr><th>Feature</th><th>Year 1</th><th>Year 2</th><th>Year 3</th><th>Year 4</th><th>Year 5</th></tr>
<tr><td>Return to Factory Parts Warranty</td><td colspan="3" rowspan="3">Standard Warranty</td><td colspan="2"></td></tr>
<tr><td>5x9 Technical Support During Overland Business Hours</td><td colspan="2" rowspan="2">Overland CARE or Software Maintenance</td></tr>
<tr><td>Software Maintenance</td></tr>
<tr><td>Next Business Day Advance Replacement Delivery of Desktop Products and/or Customer Replaceable Spares (CRS)</td><td colspan="5">Overland CARE
(available in annual increments or 3-year increment at time of purchase)</td></tr>
<tr><td>Optional Software Coverage for Snap EDR</td><td colspan="5">Supplemental Software</td></tr>
<tr><td>24x7 Access to Telephone Technical Support</td><td colspan="5">Overland ACCESS</td></tr>
</table>

5.2.5.2 SnapServer 620, 410 and 210 Support Offering Summary

The following table provides a summary of the support offering descriptions for SnapServer 410 and 210 systems.

<table>
<tr><th>Feature</th><th>Year 1</th><th>Year 2</th><th>Year 3</th><th>Year 4</th><th>Year 5</th></tr>
<tr><td>Return to Factory Parts Warranty</td><td colspan="2" rowspan="3">Standard Warranty</td><td colspan="3"></td></tr>
<tr><td>5x9 Technical Support During Overland Business Hours</td><td colspan="3" rowspan="2">Overland CARE or Software Maintenance</td></tr>
<tr><td>Software Maintenance</td></tr>
<tr><td>Next Business Day Advance Replacement Delivery of Desktop Products and/or Customer Replaceable Spares (CRS)</td><td colspan="5">Overland CARE
(available in annual increments or 3-year increment at time of purchase)</td></tr>
<tr><td>Optional Software Coverage for Snap EDR</td><td colspan="5">Supplemental Software</td></tr>
<tr><td>24x7 Access to Telephone Technical Support</td><td colspan="5">Overland ACCESS</td></tr>
</table>

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6 Purchasing Guide

6.1 Scalable Systems, Expansion, Drives, System Specific Software

The tables below provide ordering information to configure SnapServer N2000 and 620 series servers as well as SnapServer Expansion E2000 and S50 expansions with a common drive type throughout. However, any available drive type may be used in the expansion shelf provided all drives are common within a RAID set.

Following the expansion storage are additional tables for Snap EDR software specific to scalable systems. Snap EDR Software for Non-SnapServer NAS Systems are addressed in later sections of the Purchasing Guide.

6.1.1 Configuring SnapServer N2000 Solutions

The following steps can be used as guidance for configuring a scalable SnapServer N2000 solution.

Step 1	Choose and Configure a Base SnapServer N2000 System
Step 1a	**Choose a scalable SnapServer N2000 system** OV-NAS101003 SnapServer NAS N2000, 2.4TB SAS OV-NAS101004 SnapServer NAS N2000, 1.2TB SAS OV-NAS101002 SnapServer NAS N2000, 8TB SATA ENT OV-NAS101001 SnapServer NAS N2000, 4TB SATA ENT OV-NAS101006 SnapServer NAS N2000, 8TB SATA DT OV-NAS101005 SnapServer NAS N2000, 4TB SATA DT
Step 1b	**To populate a SnapServer N2000 with additional internal capacity, choose up to 8 additional drives** SAS Drive 4-Packs (15K RPM) OV-ACC901013 ACC - HDD, 600GB SAS w/ Carrier, 4 Pack OV-ACC901016 ACC - HDD, 300GB SAS w/ Carrier, 4 Pack SAS Drive Single (15K RPM) OV-ACC901019 ACC - HDD, 600GB SAS w/ Carrier OV-ACC901020 ACC - HDD, 300GB SAS w/ Carrier SATA II Enterprise Drive 4-Packs (7200 RPM) OV-ACC901012 ACC - HDD, 2TB SATA ENT w/ Carriers, 4 pack OV-ACC901011 ACC - HDD, 1TB SATA ENT w/ Carrier, 4 pack SATA II Enterprise Drive Single (7200 RPM) OV-ACC901018 ACC - HDD, 2TB SATA ENT w/ Carrier OV-ACC901017 ACC - HDD, 1TB SATA ENT w/ Carrier SATA II Desktop Drive 4-Packs (7200 RPM) OV-ACC901024 ACC - HDD, 2TB SATA DT w/ Carriers, 4 pack OV-ACC901023 ACC - HDD, 1TB SATA DT w/ Carrier, 4 pack SATA II Desktop Drive Single (7200 RPM) OV-ACC901027 ACC - HDD, 2TB SATA DT w/ Carrier OV-ACC901026 ACC - HDD, 1TB SATA DT w/ Carrier
Step 1c	**If additional Ethernet connectivity is desired, select one of the following PCIe Ethernet cards. (A maximum of six 1GbE ports are supported)** OV-ACC901005 ACC - PCIe Card, Dual Port Gig/E Card OV-ACC901015 ACC - PCIe Card, Quad Port Gig/E Card

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Step 1d	**Add a SCSI HBA for tape connectivity (if desired)** OV-ACC901008 ACC,PCIe,SCSI,U320

Step 2	**Select and Configure SnapServer Expansion E2000**
Step 2a	**Select Expansion Units – Up to 5 SnapServer Expansion E2000 JBODs per SnapServer N2000** OV-EXP101001 SnapServer EXP E2000
Step 2b	**Add Drives with Drive 4-Packs or Singles.** SAS Drive 4-Packs (15K RPM) OV-ACC901013 ACC - HDD, 600GB SAS w/ Carrier, 4 Pack OV-ACC901016 ACC - HDD, 300GB SAS w/ Carrier, 4 Pack SAS Drive Single (15K RPM) OV-ACC901019 ACC - HDD, 600GB SAS w/ Carrier OV-ACC901020 ACC - HDD, 300GB SAS w/ Carrier SATA II Enterprise Drive 4-Packs (7200 RPM) OV-ACC901012 ACC - HDD, 2TB SATA ENT w/ Carriers, 4 pack OV-ACC901011 ACC - HDD, 1TB SATA ENT w/ Carrier, 4 pack SATA II Enterprise Drive Single (7200 RPM) OV-ACC901018 ACC - HDD, 2TB SATA ENT w/ Carrier OV-ACC901017 ACC - HDD, 1TB SATA ENT w/ Carrier SATA II Desktop Drive 4-Packs (7200 RPM) OV-ACC901024 ACC - HDD, 2TB SATA DT w/ Carriers, 4 pack OV-ACC901023 ACC - HDD, 1TB SATA DT w/ Carrier, 4 pack SATA II Desktop Drive Single (7200 RPM) OV-ACC901027 ACC - HDD, 2TB SATA DT w/ Carrier OV-ACC901026 ACC - HDD, 1TB SATA DT w/ Carrier ***NOTE:*** *For SnapServer N2000 Systems, each SnapServer Expansion E2000 JBOD may be configured with 4 to 12 drives. Drives must be the same rotational speed within a horizontal column in the SnapServer Expansion E2000 JBOD shelf.)*

Step 3	**Add Snap EDR Software (as appropriate Standard or Express)**
Step 3a	**Snap EDR Standard** 5325301879 Snap EDR Standard - Department
Step 3b	**Snap EDR Express** 5325301953 Snap EDR Express - Department

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6.1.2 Configuring Snapserver Expansion S50 Solutions

The following steps can be used as guidance for configuring a SnapServer Expansion S50 for SnapServer 600-Series solutions.

Step 1	Select and Configure SnapServer Expansion S50
Step 1a	**If adding Expansion, add a SnapServer SAS HBA for 620 SATA systems (included with SnapServer 620, 1.2TB SAS systems)** 2219500 FRU, HBA, SAS, 500/600/4500/18000
Step 1b	**If additional Gigabit Ethernet ports are desired, add a dual port NIC** 5325302064 FRU, NIC, Dual Port Ethernet ***NOTE:*** *requires GuardianOS 5.2 or later, the ports available on the additional NIC cannot participate in Ethernet teaming*
Step 1c	**Select Expansion Units (Up to 7 Snap Expansion Units per 600 Series Scalable SnapServer System)** 5325302228 SnapServer Expansion S50 Single JBOD
Step 1d	**Add Drives with any combination of Drive 4-Packs or Single Drives up to a maximum of 12 Drives per Snap Expansion S50** SAS Drive 4-Packs (15K RPM) 5325302039 Drive S50/600 300GB 15K SAS 4-Pk SAS Drive Single (15K RPM) 5325302038 FRU, Drive S50/600 300GB 15K SAS SATA Drive 4-Packs (7200 RPM) 5325302325 Drive S50/620 2TB 7.2K SATA 4PK 5325302207 Drive S50/500/600 1TB 7.2K SATA 4-Pk SATA Drive Single (7200 RPM) 5325302326 FRU, Drive S50/620 2TB 7.2K SATA 5325302180 FRU, Drive S50/500/600 1TB 7.2K SATA
Step 1e	**Add drive slot blanks if fewer than 4 drives are ordered for a given S50** 2226600 FRU, Drive Slot Blank, S50 ***NOTE:*** *8 drive slot blanks are included with each SnapServer Expansion S50*

6.2 SnapServer 410 Systems and Specific Software

The tables below provide ordering information to configure SnapServer 410 series.

Following the 410 System are additional tables for Snap EDR software specific to SnapServer 410 systems. Snap EDR Software for Non-SnapServer NAS Systems are addressed in later sections of the Purchasing Guide.

Support Options and Field Replaceable Units are also addressed as separate sections in the Purchasing Guide.

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Step 1	Choose and Configure a Base SnapServer 410 System
Step 1a	**Choose a SnapServer 410 System** 5325302320 Snap Server 410, 8TB 5325302223 Snap Server 410, 4TB 5325302029 Snap Server 410, 2TB
Step 1b	**Select Additional Memory (if desired)** 5325302227 FRU, Memory, 410 1GB (1x1GB) 5325302002 FRU, Memory, 410 512MB (1x512MB) ***NOTE:*** *SnapServer 410 Systems are provided with 512MB (2 x 256MB) memory and have a total of 2 memory slots for a maximum memory configuration of 2GB.*
Step 1c	**Add a SCSI HBA for tape connectivity (if desired)** 5325301589 FRU, HBA, SCSI 600/410/510/4200/4500/15000
Step 1d	**Add a Slide Rail Kit (if desired)** 5325302005 FRU, Slide Rail Kit, 410 ***NOTE:*** *SnapServer 410 systems include Fixed Rack Mount Brackets for 19" Cabinet Mounting; a Slide Rail Kit is only required if sliding the system forward in the Rack is desired*

Step 2	Add GuardianOS Workgroup software (as appropriate)
Step 2a	**iSCSI Target Functionality** 5325302027 GuardianOS iSCSI Target - Workgroup
Step 2b	**Snapshot Functionality** 5325302025 GuardianOS Snapshot – Workgroup
Step 2c	**CA eTrust AntiVirus Functionality** 5325302024 CA Antivirus - Workgroup

Step 3	Add Snap EDR Software (as appropriate Express or Standard)
Step 3a	**Snap EDR Express** 5325302015 Snap EDR Express - Workgroup
Step 3b	**Snap EDR Standard** 5325302018 Snap EDR Standard - Workgroup

6.3 SnapServer 210 Systems and Specific Software

The tables below provide ordering information to configure the SnapServer 210 series.

Following the 210 Systems are additional tables for Snap EDR software specific to SnapServer 210 systems. Snap EDR Software for Non-SnapServer NAS Systems are addressed in later sections of the Purchasing Guide.

Support Options and Field Replaceable Units are also addressed as separate sections in the Purchasing Guide.

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